Clopidogrel is a prodrug that requires activation by CYP2C19 and other isoenzymes of the cytochrome P450 system. Carriers of a loss-of-function CYP2C19 allele have lower levels of the active metabolite, resulting in reduced platelet inhibition and a potentially higher rate of adverse cardiovascular events. As PPI are competitive inhibitors of CYP2C19, coadministration with Clopidogrel can further reduce the latter's antiplatelet activity.

The COGENT randomised trial which enrolled predominantly white Caucasian males did not demonstrate any adverse interaction between Clopidogrel and Omeprazole use. However, this interaction may be significant in Asian patients as up to 55% of Asians carry a loss-of-function CYP2C19 allele as compared to 30% of Caucasians. We hypothesize that Asian patients taking both Clopidogrel and the PPI Omeprazole are at higher risk of adverse cardiovascular events post-PCI.

Methods: This retrospective cohort study in a 1300-bed tertiary hospital in Singapore included all patients from 1st January to 31st December 2011 who had PCI and received either Omeprazole or a H2RA, together with 12 months of Aspirin and Clopidogrel. Prescription and outcome data were retrieved from electronic medical records. The primary outcome was the incidence of cardiovascular complications within 12 months of the initial PCI. Cardiovascular complication is defined as cardiovascular death, non-fatal myocardial infarction, need for urgent target vessel revascularisation and ischemic stroke.

Results: We identified 933 patients, of which 614 patients met the criteria for inclusion. The primary outcome occurred in 27 of 296 patients (9.1%) from the Omeprazole group and 13 of 318 patients (4.1%) from the H2RA group ($p = 0.014$). The difference remained statistically significant after adjustment for baseline differences in cardiovascular risk factors in both groups ($p = 0.042$).

Conclusions: Using Omeprazole rather than a H2RA was associated with a significantly greater incidence of cardiovascular complications in Asian patients on Clopidogrel after PCI. Larger studies are required to further evaluate this observation.

CRT-134

Metformin Does Not Adversely Impact Outcome Following Percutaneous Coronary Intervention in Patients with Diabetes Mellitus

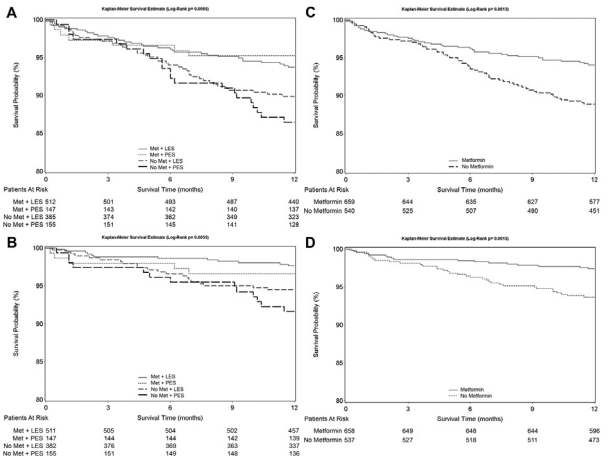
Michael J. Lipinski, Lakshmana Pendyala, Rebecca Torguson, Fang Chen, Lowell F. Satler, William O. Suddath, Augusto D. Pichard, Ron Waksman
MedStar Heart Institute, Washington, VA

Background: The use of metformin in patients with non-insulin-dependent diabetes mellitus (NIDDM) has been associated with improved cardiovascular outcomes. However, recent studies raise concern that use of metformin may inhibit endothelialization following limus-eluting stent (LES) placement and increase the risk of stent thrombosis. Therefore, we set out to study the impact of metformin on stent thrombosis and major adverse cardiovascular events in patients that received drug-eluting stents (DES).

Methods: We evaluated consecutive patient with NIDDM discharged on oral anti-hyperglycemic agents that underwent DES placement at our institution from 2003 through 2012. We assessed stent thrombosis, major adverse cardiovascular events (MACE), target lesion revascularization, myocardial infarction, and all-cause mortality at one year and analyzed the impact of metformin use and stent type on these outcomes.

Results: We included 1,201 patients with a mean age of 66 ± 10 years, 64.1% were male, 63.5% had ACS, 74.8% received LES, 25.2% received paclitaxel-eluting stents (PES), and 55% were taking Metformin. There was no difference in stent thrombosis, regardless of stent type or metformin use. Whether or not patients received LES or PES did not significantly impact MACE (Figure 1A) or all-cause mortality (Figure 1B). Patients taking metformin had a significant reduction in MACE (p=0.002) and all-cause mortality (p=0.002) compared with patients not taking metformin (Figure 1C and Figure 1D, respectively). However, multivariate analysis demonstrated that stent type and metformin use were not significantly associated with MACE or all-cause mortality.

Conclusion: In patients with NIDDM, the use of metformin following placement of DES did not increase the risk of stent thrombosis and MACE, regardless of the type of stent placed.



Chronic Total Occlusion

CRT-135

Rationale of the Decision-Making of Treatment in Chronic Total Occlusion Lesions in a University Hospital

Luis R. Alvarez-Contreras, Victoria Martin-Yuste, Salvatore Brugaletta, Yajaziel Azpeitia-Hernandez, Alejandro Santos, Manel Sabate
Hospital Clinic de Barcelona, Barcelona, Spain

Background: The presence of a chronic total occlusion (CTO) in up to 30% of routine angiograms emphasizes the importance to select an optimal treatment strategy effectiveness of its treatment and its implication in future clinical events.

Objective: We assessed the rationale for decision-making in treatment of CTO at our institution.

Methods: From June 2010 to December 2012 we evaluated all consecutive patients in our catheterization laboratory in which at least one CTO was diagnosed. Data were prospectively collected on treatment decisions (medical vs. surgery vs. percutaneous coronary intervention <PCI>), PCI indications and subsequent cardiac events through time.

Results: 711 patients with at least one CTO in the basal coronary angiogram were included. Two groups were made according to programmed to PCI (PPCI)=189 patients and non-programed to PCI (NPPCI)=522 patients. There was a statistical difference among basal characteristics in patients PPCI vs. NPPCI with less acute myocardial infarction (AMI) 16(13,6%) vs. 81(15,5%) p=0.016; less involvement of 3-vessel disease 56(29,6%) vs. 224 (42,9%) p=0.002; and less presence of coronary left-main disease 12 (6,4%) vs. 72 (13,8%) p=0.007. There was also a difference between age (62,6±10.4 years vs. 68,3±10.7 years; p=<0.0001); ejection fraction (EF) (47,1±13,8% vs. 44,9±13,9;p=0.017%) and creatinine clearance (70,8 ±28,6 ml/min vs. 62 ±23,1, ml/min; p=<0.001). The multivariate analysis demonstrated that the following variables in predicting no PCI as first step approach in CTO lesions: AMI, number of diseased vessels, left main lesion and age. There was a trend to be treated by PCI as first step approach in patients with positive ischemia by a stress test.

Conclusion: In a large all comer CTO lesion population, in a University hospital; the first step approach of revascularization is dictated by clinical factors as age, comorbidity (EF and creatinine clearance), AMI; anatomical factors such as left-main disease and 3-vessel disease. On the other hand, at our institution the choice of PCI as first step